<u>REMARKS</u>

In the Office Action, the Examiner indicated that Claims 34 and 35 are pending in the application and the Examiner rejected all claims.

Rejections of Claim 34 under 35 U.S.C. §112 Second Paragraph

In item 3 of the Office Action, the Examiner rejected Claim 34 under 35 U.S.C. §112 Second Paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant respectfully disagrees with the Examiner with regards to this rejection.

First, the Examiner points out lines 8-9 of Claim 34, where "presolving, using a computer, the plurality of anticipated financial portfolio optimization problems" is claimed. The Examiner states it is unclear what the meaning of pre-solving is "because in this step the data is already stored" (Page 2 of Office Action). The pre-solving relates to anticipated financial portfolio optimization problems, i.e., problems that may occur but have not already occurred. The data stored in a previous step is not a solution to a financial portfolio optimization problem, but merely data relating to a possible anticipated financial portfolio optimization problem.

Second, the Examiner points out Claim 34, line 10, where the plurality of data groups are compiled. The Examiner states it is unclear "what is the meaning of 'what it is you are compiling' and what is the result of the compilation" (Page 2 of the Office Action). In the limitation, it is clear that the plurality of data groups are compiled, and the compiling itself is defined by the results of the pre-solving step performed previously. The resulting compiled products are prepared and stored in a later step.

Finally, the Examiner points out Claim 34, line 16-17 and line 20, each involving applying solutions of the pre-solving steps to current financial portfolio optimization problems. First, the Examiner states "it is unclear what is the meaning of the current financial optimization problem" (Page 2 of the Office Action). The current financial optimization problem is just that, a current problem that the present invention is trying to solve. Claim 34 is "A computer-implemented method for solving a current financial portfolio optimization problem" (Claim 34, lines 1-2). By pre-solving anticipated financial portfolio optimization problems, the present invention can quickly solve any current financial portfolio optimization problems. Second, the Examiner states "it is unclear how one would know it is 'optimal'" (Page 2 of the Office Action). Whether a solution is optimal is determined based upon the pre-solving of the anticipated financial portfolio optimization problems. The entire claim is directed towards solving an optimization problem, a resulting solution to the problem will be an optimal solution.

As for the rejections of Claim 35 (which is not addressed in the introduction of the 112 second paragraph rejections), similar arguments as those presented with respect to Claim 34 apply.

Rejection of Claims 34 and 35 Under 35 U.S.C. §103(a)

In item 4 of the Office Action, the Examiner rejected Claims 34 and 35 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,802,499 to Sampson in view of U.S. Patent No. 6,086,619 to Hausman.

The Present Invention

The present invention allows different optimization problems to be solved with fewer iterations and improved response time. In a preferred embodiment, a predetermined number of anticipated financial portfolio optimization problems and calculations that are typically performed in solving them are pre-solved. Data associated with and derived from these calculations, e.g., anticipated input values, intermediate calculation values and optimal solutions to the anticipated problems, are stored in a database or the like. Specifically, Claim 34 recites "pre-solving, using said computer, the plurality of anticipated financial portfolio optimization problems; compiling, using said computer, the plurality of data groups based on the results of the pre-solving step" (Claim 34, lines 8-11). The prestored data in the database are used to reduce the processing time involved in obtaining optimal solution(s) to a current financial portfolio optimization problem to be solved. Additionally, Claim 34 recites "solving, using said computer, the current financial portfolio optimization problem using the stored data groups" (Claim 34, lines 16-17).

U.S. Patent No. 5,802,499 to Sampson et al.

U.S. Patent No. 5,802,499 to Sampson et al. ("Sampson") teaches a computer-based information network for managing credit exposure between counterparties to a plurality of credit support agreements by utilizing credit specific information storage and processing systems. The systems store various types of information including information representative of assets of counterparties to a plurality of credit support agreements for use in covering credit exposures therebetween over a specified time period, and the plurality of credit support agreements. The

systems process the information representative of the assets in order to effectively reflect a movement of certain of the assets to cover the credit exposures over the specified time period. An asset movement optimization process is used for determining an optimal movement of certain of said assets to cover credit exposures over the specified time period.

U.S. Patent No. 6,086,619 to Hausman

U.S. Patent No. 6,086,619 to Hausman ("Hausman") teaches an apparatus and method for modeling optimization problems providing variable specification of both input and output in enhanced graph theoretic form. Problem elements including nodes and links may be defined, as may constraints on nodes and links and on groups of nodes and links, including proportional and required relationships between network elements and groups of network elements that are connected and unconnected. Data received in enhanced graph theoretic format are transformed into the form of an objective function, possibly including linear, bilinear, and quadratic terms, and a system of constraints, which are then solved using network program, linear program, or mixed integer linear program software.

The Examiner Has Not Established a *Prima Facie* Case of Obviousness

As set forth in the MPEP:

> To establish a *prima facie* case of obviousness, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skilled in the art, to modify the reference or to combine reference teachings.
> MPEP 2143

First, it should be noted that in the 103(a) rejections, the Examiner continually refers to previously cited prior art Graefe. For purposes of prior art interpretation, Applicants are assuming each instance of Graefe is intended to read Sampson.

As discussed above, the presently claimed invention is directed towards solving current financial portfolio optimization problems by *pre-solving* a series of possible anticipated financial portfolio optimization problems, and applying the solutions to the anticipated problems to any currently unsolved problem. By presolving anticipated financial portfolio optimization problems, any computer run-time needed when a current problem is encountered is minimized. This is in contrast with the cited prior art, specifically Sampson and Hausman.

The Examiner asserts that Sampson teaches storing a plurality of data groups, each associated with one of a plurality of anticipated portfolio problems, and using this stored information to pre-solve any anticipated portfolio problems, specifically citing Column 58, lines 14-67 and Column 59, lines 1-43 as teaching pre-solving anticipated portfolio problems. Applicants respectfully disagree with the Examiner's interpretation of these passages. Sampson outlines a credit transfer optimization procedure where previously input user data is used to determine the most beneficial way of proceeding with a series of transactions. Specifically, Sampson calls this process "achieving optimal asset movement to effect cover of credit exposure among the counterparties" (Column 58, lines 19-21). The process takes into account various criteria relating to each of the counterparties such as time zone, amount to move, currency of transfers, exchange rates, collateral available, etc. This criteria is used to develop the optimized process to be used. An important factor in this process, though, is that all the criteria is known for each counterparty. There are no unknown variables and thus, <u>there is no need for presolving</u>

any anticipated financial portfolio optimization problems as is specifically claimed in the present invention. Once the optimized process is determined by Sampson, it is immediately carried out. Additionally, as Sampson fails to teach pre-solving anticipated financial portfolio optimization problems, the additional claimed limitations relating to the pre-solving (i.e., storing results of the pre-solving, utilizing the pre-solved solutions to solve current problems) are not taught or reasonably suggested by Sampson.

Hausman is an apparatus and method for modeling linear and quadratic programs. Applicant does not deny that modeling of programs in this manner is well known; applicant does not claim to have invented this technology. However, nothing in Hausman suggests or teaches pre-solving anticipated portfolio optimization problems and storing the results of these pre-calculations so that they may be later used to speed up the process of solving a current portfolio optimization problem when needed. Without any such teaching or suggestion, it is inappropriate to reject the claims based on Sampson or Hausman, either alone or in combination.

Both independent Claims 34 and 35 herein include the limitations of storing the pre-solution of optimal solutions to anticipated financial portfolio optimization problems, and then use of these stored pre-solutions in solving a current financial portfolio optimization problem. Accordingly, for the reasons set forth above, the Examiner is respectfully requested to reconsider and withdraw the rejection of the claims under 35 U.S.C. § 103.

Additionally, the Examiner states that Sampson fails to explicitly teach financial information optimization. The Examiner relies on Hausman to teach the use of a specific construct, QUADCOSTS, and a network optimization method, Netcore, to modify Sampson to include financial portfolio optimization. Hausman, however, is an apparatus and method for

modeling network optimization problems where attention can be paid to nodes and links which may be problematic. The Examiner states that "it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Graefe [sic] [Sampson] to include financial taught by Hausman in order to perform optimization on a financial portfolio." No teaching of applying the optimization techniques used by Hausman to credit exposure management is disclosed in the teachings of Hausman. Nor does Sampson disclose that network optimization techniques can be applied to credit exposure management. Therefore, it is impossible to assert that it would have been obvious to modify Sampson as taught by Hausman as neither provides motivation for such a combination of teachings.

Both independent Claims 34 and 35 herein include the limitation of anticipating financial portfolio optimization problems. Accordingly, the Examiner is respectfully requested to reconsider and withdraw the rejection of the claims under 35 U.S.C. § 103.

<u>Conclusion</u>

The present invention is not taught or suggested by the prior art. Accordingly, the Examiner is respectfully requested to reconsider and withdraw the rejection of the claims. An early Notice of Allowance is earnestly solicited.

The Commissioner is hereby authorized to charge any fees associated with this communication to Deposit Account No. 09-0457.

Respectfully submitted,

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Date

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